Exelon Generation Company, LLC
Quad Cities Nuclear Power Station
22710 206th Avenue North
Cordova, IL 61242-9740

www.exeloncorp.com

Exelon Nuclear

September 30, 2002

SVP-02-078

U. S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, D.C. 20555

Quad Cities Nuclear Power Station, Unit 2
Facility Operating License No. DPR-30
NRC Docket No. 50-265

Subject: Licensee Event Report 265/02-004, "Inadequate Separation in both Trip Systems of the Scram Discharge Instrument Volume Input to the Reactor Protection System"

Enclosed is Licensee Event Report (LER) 265/02-004, "Inadequate Separation in both Trip Systems of the Scram Discharge Instrument Volume Input to the Reactor Protection System," for Quad Cities Nuclear Power Station, Unit 2.

This report is submitted in accordance with the requirements of the Code of Federal Regulations, Title 10, Part 50.73(a)(2)(vii), which requires reporting of any event where a single cause or condition caused at least one independent train or channel to become inoperable in multiple systems or two independent trains or channels to become inoperable in a single system designed to shut down the reactor and maintain it in a safe shutdown condition.

We are committing to the following actions:

- The contracted engineering group that prepared this design change will provide training to their electrical engineers and instrument and controls engineers concerning the following items:
  - cable separation,
  - identification of Updated Final Safety Analysis Report (UFSAR) requirements,
  - site-specific procedural expectations,
  - electrical interdisciplinary review responsibilities, and
  - the requirement to review the UFSAR as part of the design preparation and review.
- The Unit 1 design change will be revised to retain the process computer isolation relays.

IE22

- The Unit 2 process computer isolation relays will be reinstalled.

Any other actions described in the submittal represent intended or planned actions by Exelon Generation Company, LLC (EGC). They are described for the NRC's information and are not regulatory commitments.

Should you have any questions concerning this report, please contact Mr. W. J. Beck at (309) 227-2800.

Respectfully,

Timothy J. Tulon
Site Vice President
Quad Cities Nuclear Power Station

cc: Regional Administrator – NRC Region III
NRC Senior Resident Inspector – Quad Cities Nuclear Power Station

NRC FORM 366 (7-2001) U.S. NUCLEAR REGULATORY COMMISSION

LICENSEE EVENT REPORT (LER)

APPROVED BY OMB NO. 3150-0104 EXPIRES 7-31-2004

Estimated burden per response to comply with this mandatory information collection request. 50 hours Reported lessons learned are incorporated into the licensing process and fed back to industry. Send comments regarding burden estimate to the Records Management Branch (T-6 E6), U S Nuclear Regulatory Commission, Washington, DC 20555-0001, or by internet e-mail to bjs1@nrc gov, and to the Desk Officer, Office of Information and Regulatory Affairs, NEOB-10202 (3150-0104), Office of Management and Budget, Washington, DC 20503 If a means used to impose information collection does not display a currently valid OMB control number, the NRC may not conduct or sponsor, and a person is not required to respond to, the information collection

1. FACILITY NAME	2. DOCKET NUMBER	3. PAGE
Quad Cities Nuclear Power Station Unit 2	05000265	1 of 4

4. TITLE Inadequate Separation in both Trip Systems of the Scram Discharge Instrument Volume Input to the Reactor Protection System

5. EVENT DATE			6. LER NUMBER			7. REPORT DATE			8. OTHER FACILITIES INVOLVED	
MO	DAY	YEAR	YEAR	SEQUENTIAL NUMBER	REV NO	MO	DAY	YEAR	FACILITY NAME	DOCKET NUMBER
									N/A	N/A
08	02	02	02	- 004 -	00	09	30	02	FACILITY NAME N/A	DOCKET NUMBER N/A

9. OPERATING MODE	1
10. POWER LEVEL	098

11 THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check all that apply)

20 2201(b)	20.2203(a)(3)(ii)	50.73(a)(2)(ii)(B)	50.73(a)(2)(ix)(A)
20.2201(d)	20.2203(a)(4)	50.73(a)(2)(iii)	50.73(a)(2)(x)
20.2203(a)(1)	50 36(c)(1)(i)(A)	50.73(a)(2)(iv)(A)	73.71(a)(4)
20 2203(a)(2)(i)	50 36(c)(1)(ii)(A)	50.73(a)(2)(v)(A)	73.71(a)(5)
20 2203(a)(2)(ii)	50 36(c)(2)	50.73(a)(2)(v)(B)	OTHER Specify in Abstract below or in NRC Form 366A
20 2203(a)(2)(iii)	50 46(a)(3)(ii)	50 73(a)(2)(v)(C)	
20 2203(a)(2)(iv)	50.73(a)(2)(i)(A)	50 73(a)(2)(v)(D)	
20.2203(a)(2)(v)	50.73(a)(2)(i)(B)	X 50.73(a)(2)(vii)	
20.2203(a)(2)(vi)	50 73(a)(2)(i)(C)	50.73(a)(2)(viii)(A)	
20 2203(a)(3)(i)	50.73(a)(2)(ii)(A)	50.73(a)(2)(viii)(B)	

12. LICENSEE CONTACT FOR THIS LER

NAME	TELEPHONE NUMBER (Include Area Code)
Wally Beck, Regulatory Assurance Manager	(309) 227-2800

13. COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT

CAUSE	SYSTEM	COMPONENT	MANU-FACTURER	REPORTABLE TO EPIX	CAUSE	SYSTEM	COMPONENT	MANU-FACTURER	REPORTABLE TO EPIX

14. SUPPLEMENTAL REPORT EXPECTED			15. EXPECTED SUBMISSION DATE	MONTH	DAY	YEAR
YES (If yes, complete EXPECTED SUBMISSION DATE)	X	NO				

16. ABSTRACT (Limit to 1400 spaces, I e , approximately 15 single-spaced typewritten lines)

On August 2, 2002, at 2015 hours, Unit 2 entered Technical Specification (TS) 3.3.1.1, Condition B, which requires one channel in one trip system of the Reactor Protection System (RPS) to be placed in trip within six hours. It had been determined that one channel of the Scram Discharge Instrument Volume (SDIV) RPS trip in each of the RPS trip systems was inoperable. A modification to replace the SDIV high level sensing instrument that had been installed in March of 2002 had also removed a relay that served as a separation point between the safety-related RPS input and the non-safety-related process computer input. Within the six hours, a temporary modification removing the computer input was in place and the unit exited Condition B of TS 3.3.1.1.

The cause of the failure to identify the separation issue was a lack of technical rigor during the design process.

Because one operable channel remained in each RPS trip system, the safety significance of this event was minimal.

Corrective actions include training concerning identification of separation issues and reinstallation of the removed relay.

PLANT AND SYSTEM IDENTIFICATION

General Electric - Boiling Water Reactor, 2957 Megawatts Thermal Rated Core Power

Energy Industry Identification System (EIIS) codes are identified in the text as [XX].

EVENT IDENTIFICATION

Inadequate Separation in both Trip Systems of the Scram Discharge Instrument Volume (SDIV) Input to the Reactor Protection System (RPS)

A. CONDITION PRIOR TO EVENT

Unit: 2 Event Date: August 2, 2002 Event Time: 2015 hours
Reactor Mode: 1 Mode Name: Power Operation Power Level: 098%

Power Operation (1) - Mode switch in the RUN position with average reactor coolant temperature at any temperature.

B. DESCRIPTION OF EVENT

During a Unit 2 refuel outage in March of 2002, two high level sensing instruments [LE] on each of the two SDIVs [AA] were replaced. The existing thermal switches [LS] were replaced with float switches. These level instruments provide a signal to the RPS [JC] and, on one of the two SDIVs, to the plant process computer. As part of this modification, an isolation relay [RLY] was removed from the logic for each of the level instruments.

On August 2, 2002, it was determined that the relays that were removed had constituted the separation point between the safety related RPS cabling and the non-safety related computer input. By removing the relay, the isolation point was moved to the new level switches which resulted in conductors for RPS and the computer input running in the same cable (CBL) from the level switch to the old relay termination points. Because of the lack of separation, one channel of SDIV RPS logic in each trip system was declared inoperable.

For this condition, Technical Specification (TS) 3.3.1.1, Condition B, requires one channel in one RPS trip system to be placed in trip within six hours. Before the six hours had elapsed, the feed from the level instruments to the plant process computer had been removed using the temporary modification process. This allowed the unit to exit Condition B.

The modification to replace the thermal switches with float switches was initiated in June 2001. At that time, the design approach did not include removing the separation relay. A review of the design attributes performed at that time identified that there were no separation issues associated with the modification.

The design was prepared by a contracted engineering group that identified during the preparation of the design that the circuit could be simplified by removing the existing interfacing relay. The relay was assumed to be for contact multiplication,

rather than for isolation. The design attributes were not re-reviewed, as they should have been in response to the change in design. The contact multiplication design basis was accepted during the site review and approval without significant challenge.

In early August 2002, during work package preparation for the same design change on Unit 1, the use of the cable by both the computer signal and the RPS signal was questioned, and the separation issue was identified.

C. CAUSE OF EVENT

The root cause of the failure to identify the separation issue was the lack of technical rigor resulting in improper identification of the design function of the relays being removed.

D. SAFETY ANALYSIS

The safety significance of this event was minimal. This issue affected one channel in each of the two RPS trip systems, leaving one operable channel in each trip system. Therefore, in the event there had been high level in the SDIV, and assuming a concurrent failure of the computer cabling such that the RPS wiring shorted together, the scram would still have been initiated.

E. CORRECTIVE ACTIONS

Immediate Actions:

A temporary modification was installed to reconfigure the Unit 2 SDIV high level circuits to disconnect the cables associated with the process computer inputs, thereby restoring separation.

Corrective Actions Completed:

The preparer and reviewers of this design change were coached to ensure that future work is performed to acceptable standards.

Corrective Actions to be Completed:

The contracted engineering group that prepared this design change will provide training to their electrical engineers and instrument and controls engineers concerning the following items:

- cable separation,
- identification of Updated Final Safety Analysis Report (UFSAR) requirements,
- site-specific procedural expectations,
- electrical interdisciplinary review responsibilities, and
- the requirement to review the UFSAR as part of the design preparation and review.

The Unit 1 design change will be revised to retain the process computer isolation relays.

The Unit 2 process computer isolation relays will be reinstalled.

F. PREVIOUS OCCURRENCES

No reportable instances of failure to maintain separation were identified during the last two years.

G. COMPONENT FAILURE DATA

There were no component failures associated with this event.